



```

- **          (`%idle`)** 91.09% CPU
- **          (`%user`)** 7.76% 10.07% 20:45
- **          (`%system`)** 1.12%
- **          **
- **`%iowait`** 0.03% 0.06% ** I/O **
- **`%steal`** 0%
- **`%nice`** 0%

```

```

#### **          **
- **20:00-22:00**          `%user` 8-10% 20:45 10.07%
- **22:00 **          `%user` 6.27-6.70% 92-93%

```

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> ** ** CPU
```

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### **          (`sar -r` **
``bash
#
Average: 591147 20035239 11154124 34.75 1292042 14122169 22197908 61.17
13299787 13005861 64628
``

```

```

- **          ** 32.5 GB
- **          (`%memused`)** 34.75% 11.15 GB **          **
- **          (`kbmemfree`)** 577 MB 266 MB - 945 MB
- **          (`kbavail`)** 19.1 GB **          **
- **          **
- **          (`kbcached`)** 13.5 GB 41.5% I/O
- **          (`kbbuffers`)** 1.29 GB
- **          (`kbcommit`)**
- 22.2 GB
- **`%commit`** 61.17% + 36.3
GB 3.8 GB
- **          **
- **          (`kdirty`)** 63 MB
- **          / ** 12.7 GB 12.4 GB

```

```
> ** ** I/O
```

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```

### **          **
| ** ** | ** ** | ** ** | ** ** | ** ** |
|-----|-----|-----|-----|-----|
| **CPU** | `%idle` | 91.09% | 93.16% | |
| | `%user` | 7.76% | 10.07% | |

```



1. ???????%user?6.10%?10.07%?????????7.76%?

2. %nice???0????????????????????????????????????CPU??

3. %system?0.72%?1.61%?????1.12%?

4. %iowait?????0.01%?0.06%?????0.03%???I/O????????

5. %steal???0????????????????????????????????????

6. %idle?????91.09%????????????????????CPU?????

????????

- 20:45?21:05?????????%user?10.07%?9.55%?????????

- 22:25????%user?????????6%~7%?????%idle???92%~93%?

???CPU????????????????????????CPU???

????????????sar -r??

??????

kbmemfree: ?????????KB?

kbavail: ?????????????????????????????????KB?

kbmemused: ?????????????????????????????????????KB?

%memused: ?????????kbmemused / (kbmemfree+kbmemused) ?????????????

kbuffers: ??????buffer????????KB?

kbcached: ??????page cache????????KB?

kbcommit: ?????????????????KB?

%commit: ?????????????????+?????????

kbactive: ?????????????????KB?

kbinact: ?????????????????????KB?

kbdirty: ?????????????????KB?

???????? = kbmfree + kbmused??man sar?kbmused????????????????????????????????  
kbfree+kbmused+kbbuffers+kbcached????man sar??kbmused?used memory minus buffers/cache  
????????kbfree + kbmused + buffers + cached????kbmused????buffers?cached??

????????????????????????

kbfree????????????

kbmused??

????sar -r???? = kbfree + kbmused + kbbuffers + kbcached????kbmused  
????????????????????????

???????

kbfree = 272628, kbmused=11141368, kbbuffers=1293468, kbcached=14409484

???? = 272628 + 11141368 + 1293468 + 14409484 = 27165948 KB? ?????????????????????????27GB?

????sar -r????kbmused????????????????used????man sar?sysstat????

kbfree: Amount of free memory available to the kernel. This is the amount of memory left unused by the system.

kbmused: Amount of used memory. This does not take into account memory used by the kernel itself.

%mused: Percentage of used memory.

????sar????????????????

??1?used = total - free - buffers - cache

??2?used = total - free

????kbmused????????1??

??? = kbfree + kbmused + kbbuffers + kbcached

272628 + 11141368 + 1293468 + 14409484 = 272628+11141368=11413996;  
11413996+1293468=12707464; 12707464+14409484=27116948 KB -> 27.1GB

$\frac{11141368}{32100000} \times 100 = 34.71\%$   
KB 32.1GB 27.1GB

$\frac{11141368}{11413996 + 1293468} = \frac{11141368}{12707464} = 0.8766$   
KB 11.4GB 32.1GB

kbmemused kbmemused used

man sar 11.7.3

kbmemfree: Free memory (in kB) available to the kernel. This corresponds to the "MemFree" field in /proc/meminfo.

kbmemused: Used memory (in kB). This corresponds to the "MemTotal" minus "MemFree" fields in /proc/meminfo, and does not take into account memory used by the kernel itself (for buffers, caches, etc.). So this is the amount of memory used by applications.

/proc/meminfo

MemTotal: 32511328 kB 32.5GB

MemFree: 272628 kB

MemAvailable: 20046696 kB kbavail

Buffers: 1293468 kB

Cached: 14409484 kB Cached

MemTotal = 32511328 kB 32.5GB

$32511328 - 272628 = 32238700$  kB kbmemused 11141368 kB

sar man page -r

kbmemfree: Amount of free memory available to the kernel. The same as the "MemFree" field in /proc/meminfo.



????%commit????????????+?????????????????0????%commit=22197908/32511328?68.2%????%commit??  
61.17%????????????swap????????+?????S???

22197908 / S = 0.6117 => S = 22197908 / 0.6117 ? 36,288,000 KB??36.3GB?

?????? = S - ??? = 36.3GB - 32.5GB = 3.8GB?

???

- ??????????????????34.75%????????????????????????????????19.1GB??????????

- ??????????13.5GB??????????????????????

- ?????????????%commit????????????22.2GB?????????32.5GB????????????????????????????????sar -W  
??????????????????????

????????????????20:00-24:00?????????CPU?????????????????I/O???

???

1. ??CPU????????????????????????????????CPU?
2. ???
3. ??I/O????????????????????????????????I/O??sar -d???????